

EXECUTIVE SUMMARY

This report on the coal resources of the Kaiparowits Plateau, Utah is a contribution to the U.S. Geological Survey's (USGS) "National Coal Resource Assessment" (NCRA), a five year effort to identify and characterize the coal beds and coal zones that could potentially provide the fuel for the Nation's coal-derived energy during the first quarter of the twenty-first century. For purposes of the NCRA study, the Nation is divided into regions. Teams of geoscientists, knowledgeable about each region, are developing the data bases and assessing the coal within each region. The five major coal-producing regions of the United States under investigation are: (1) the Appalachian Basin; (2) the Illinois Basin; (3) the Gulf of Mexico Coastal Plain; (4) the Powder River Basin and the Northern Great Plains; and (5) the Rocky Mountains and the Colorado Plateau. Six areas containing coal deposits in the Rocky Mountain and Colorado Plateau Region have been designated as high priority because of their potential for development. This report on the coal resources of the Kaiparowits Plateau is the first of the six to be completed.

The coal quantities reported in this study are entirely "resources" and represent, as accurately as the data allow, all the coal in the ground in beds greater than one foot thick. These resources are qualified and subdivided by thickness of coal beds, depth to the coal, distance from known data points, and inclination (dip) of the beds. The USGS has not attempted to estimate coal "reserves" for this region. Reserves are that subset of the resource that could be economically produced at the present time.

The coal resources are differentiated into "identified" and "hypothetical" following the standard classification system of the USGS (Wood and others, 1983). Identified resources are those within three miles of a measured thickness value, and hypothetical resources are further than three miles from a data point. Coal beds in the Kaiparowits

Plateau are laterally discontinuous relative to many other coal bearing regions of the United States. That is, they end more abruptly and are more likely to fragment or split into thinner beds. Because of these characteristics, the data from approximately 160 drill holes and 40 measured sections available for use in this study are not sufficient to determine what proportion of the resources is technologically and economically recoverable.

The Kaiparowits Plateau contains an original resource of 62 billion short tons of coal in the ground. Original resource is defined to include all coal beds greater than one foot thick in the area studied. None of the resource is recoverable by surface mining. However, the total resource figure must be regarded with caution because it does not reflect geologic, technological, land-use, and environmental restrictions that may affect the availability and the recoverability of the coal. At least 32 billion tons of coal are unlikely to be mined in the foreseeable future because the coal beds are either too deep, too thin to mine, inclined at more than 12°, or in beds that are too thick to be completely recovered in underground mining. The estimated balance of 30 billion tons of coal resources does not reflect land use or environmental restrictions, does not account for coal that would be bypassed due to mining of adjacent coal beds, does not consider the amount of coal that must remain in the ground for roof support, and does not take into consideration the continuity of beds for mining. Although all of these factors will reduce the amount of coal that could be recovered, there is not sufficient data available to estimate recoverable coal resources. For purposes of comparison, studies of coal resources in the eastern United States have determined that less than 10 percent of the original coal resource, in the areas studied, could be mined economically at today's prices (Rohrbacher and others, 1994).